

IN THE CLAIMS:

Please amend the claims as follows:

- 1 1. (Original) An intermediate network device having a plurality of ports for sending and
2 receiving network messages to and from one or more entities of a computer network at
3 least some of which are segregated into a plurality of virtual local area network (VLANs)
4 defined within the computer network, the intermediate network device comprising:
5 a compact-Generic Application Registration Protocol (GARP) VLAN Registra-
6 tion Protocol (GVRP) application component associated with a selected port, the com-
7 pact-GVRP application component having:
8 a GARP Information Declaration (GID) component configured to main-
9 tain VLAN registration state for the selected port in response to receiving attribute
10 events for the VLANs;
11 a compact-GVRP encoder/decoder unit; and
12 a GVRP PDU message generator, wherein
13 the compact-GVRP encoder/decoder unit is configured to compute an encoded
14 value, in accordance with an encoding algorithm, for the attribute events associated with
15 a given set of VLANs, and
16 the GVRP PDU message generator loads the encoded values computed for all of
17 the VLANs defined within the computer network within a single GVRP PDU message
18 for transmission from the selected port.

Please add claim 2 et seq.

1 2. (New) An intermediate node as defined in claim 1 wherein the encoding algorithm is a
2 number based conversion algorithm.

1 3. (New) An intermediate node as defined in claim 2 wherein the number based conver-
2 sion algorithm is $((((E_x \times 5 + E_{x+1}) \times 5 + E_{x+2}) \times 5 + E_{x+3}) \times 5 + E_{x+4}) \times 5 + E_{x+5}$ and
3 wherein E_x corresponds to the attribute event for the first VLAN in the set, E_{x+1} corre-
4 sponds to the attribute event for the second VLAN in the set, E_{x+2} corresponds to the at-
5 tribute event for the third VLAN in the set, E_{x+3} corresponds to the attribute event for the
6 fourth VLAN in the set, E_{x+4} corresponds to the attribute event for the fifth VLAN in the
7 set, and E_{x+5} corresponds to the attribute event for the sixth VLAN in the set.

1 4. (New) An intermediate node as defined in claim 1 wherein the compact-GVRP en-
2 coder/decoder unit is configured to decode an encoded value contained in a compact-
3 GVRP PDU message, that was encoded using the encoding algorithm, to yield attribute
4 event information for a set of VLANs.

1 5. (New) An intermediate node as defined in claim 1 wherein the compact-GVRP appli-
2 cation component is configured to generate and send a GVRP PDU containing a
3 just_kidding message.

1 6. (New) An intermediate node as defined in claim 5 further comprising:
2 a leave timer;
3 a just_kidding timer; and
4 a just_kidding state machine,
5 wherein upon sending the GVRP PDU containing the just_kidding message the
6 just_kidding state machine starts the leave timer and re-starts the just_kidding timer.

- 1 7. (New) An intermediate node as defined in claim 6 comprising:
2 a leave_all timer; and
3 a leave_all state machine,
4 wherein upon expiration of the leave_all timer the leave_all state machine enters
5 an active state and the compact-GVRP application component generates and sends a
6 GVRP PDU message that is configured to cause network entities that receive it to re-
7 spond with one or more GVRP PDU messages.
- 1 8. (New) An intermediate node as defined in claim 7 wherein the leave timer is set to a
2 high value relative to the leave_all timer.
- 1 9. (New) An intermediate node as defined in claim 7 comprising:
2 a mode selection unit configured to be in one of a compatible mode, a fast com-
3 pact mode or a slow compact mode,
4 wherein if after the compact-GVRP application component sends the GVRP PDU
5 message containing a just_kidding message and the mode selection unit is either in the
6 fast compact mode or the slow compact mode and the GVRP application receives a con-
7 ventional GVRP PDU message, the mode select unit enters the compatible mode.
- 1 10. (New) An intermediate node as defined in claim 7 comprising:
2 a port partner variable configured to hold a source identifier,
3 wherein upon processing a received GVRP message containing a negotiation
4 message with a source identifier the compact GVRP application component places the
5 source identifier in the port partner variable.
- 1 11. (New) An intermediate node as defined in claim 10 wherein upon processing a re-
2 ceived GVRP message containing a negotiation message with a source identifier that

3 does not match the content of the port partner variable, the compact GVRP application
4 enters the slow compact mode.

1 12. (New) An intermediate node as defined in claim 10 wherein upon processing a re-
2 ceived GVRP message containing a negotiation message with a source identifier that
3 matches the content of the port partner variable, the compact GVRP application enters the
4 fast compact mode.

1 13. (New) An intermediate node as defined in claim 1 wherein the compact GVRP appli-
2 cation is configured to generate a mixed format GVRP PDU message containing a con-
3 ventional attribute structure and a vector message.

1 14. (New) In an intermediate node having a plurality of ports for sending and receiving
2 network messages to and from one or more entities of a computer network at least some
3 of which are segregated into a plurality of virtual local area network (VLANs) defined
4 within the computer network, a method for conveying VLAN membership information
5 comprising the steps of:

6 for a set of VLANs defined within the computer network, computing an encoded
7 value, in accordance with an encoding algorithm, for attribute events associated with the
8 given set of VLANs; and

9 loading encoded values for all of the VLANs defined within the computer net-
10 work into a single GVRP PDU message for transmission at one or more ports in the plu-
11 rality of ports.

1 15. (New) A method as defined in claim 14 further comprising the step of:

2 decoding an encoded value, that was encoded using the encoding algorithm and is
3 contained in a compact-GVRP PDU message, to yield attribute event information for a
4 set of VLANs.

1 16. (New) A method as defined in claim 14 further comprising the steps of:
2 generating a GVRP PDU message containing a just_kidding message;
3 sending the GVRP PDU message containing the just kidding message out one or
4 more ports of the plurality of ports; and
5 restarting a just_kidding timer.

1 17. (New) A method as defined in claim 16 further comprising the step of:
2 entering a slow compact mode upon the expiration of the just_kidding timer and
3 the non-receipt of a conventional GVRP PDU message.

1 18. (New) A method as described in claim 16 further comprising the steps of:
2 entering one of a slow compact mode or a fast compact mode;
3 receiving a conventional GVRP PDU message; and
4 reverting to a compatible mode.

1 19. (New) A method as defined in claim 14 comprising the steps of:
2 receiving a first compact-GVRP PDU message wherein the first compact-GVRP
3 PDU message contains a first source identifier.

1 20. (New) A method as defined in claim 19 comprising the steps of:
2 receiving a second compact-GVRP PDU message wherein the second compact-
3 GVRP PDU message contains a second source identifier that does not match the first
4 source identifier; and
5 entering a slow compact mode.

1 21. (New) A method as defined in claim 19 comprising the steps of:
2 receiving a second compact-GVRP PDU message wherein the second compact-
3 GVRP PDU message contains a second source identifier that matches the first source
4 identifier; and

5 entering a fast compact mode.

1 22. (New) An apparatus having a plurality of ports for sending and receiving network
2 messages to and from one or more entities of a computer network at least some of which
3 are segregated into a plurality of virtual local area network (VLANs) defined within the
4 computer network, the apparatus comprising:

5 means for maintaining VLAN registration state for a selected port in response to
6 receiving attribute events for the VLANs;

7 means for computing an encoded value, in accordance with an encoding algo-
8 rithm, for attribute events associated with a given set of VLANs;

9 means for loading encoded values for all of the VLANs defined within the com-
10 puter network into a single GVRP PDU message for transmission from a port in the plu-
11 rality of ports.

1 23. (New) A computer readable medium comprising computer executable instructions
2 for:

3 computing an encoded value, in accordance with an encoding algorithm, for at-
4 tribute events associated with a given set of VLANs; and

5 loading encoded values for all of the VLANs defined within the computer net-
6 work into a single GVRP PDU message for transmission from a port in the plurality of
7 ports.